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BROOKS KUSHMAN P.C./FGTL 1000 TOWN CENTER 22ND FLOOR SOUTHFIELD, MI 48075-1238			EXAMINER DANIELS, MATTHEW J	
			ART UNIT 1732	PAPER NUMBER

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/735,536

Applicant(s)

GERLOCK ET AL.

Examiner

Matthew J. Daniels

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 19 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 21-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. In the reply filed 30 May 2006, Claims 1, 3, 5, 11, 12, 14, 15, and 18 were amended. Claims 21-26 are new.

Election/Restrictions

2. Although no affirmation of the provisional telephone election was made in the reply filed 30 May 2006, withdrawal of Claims 19 and 20 is interpreted to be affirmation of the election previously made by telephone. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Priority

3. The claim to domestic priority has been cancelled by the amendment to the specification filed 30 May 2006. Applicant's remarks confirm the removal of the claim to domestic priority (page 12).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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4. **Claims 21-26** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. **As to Claim 21**, there is no disclosure of all number of flashes greater than 5, but only of particular values. **As to Claim 22**, this claim is dependent on rejected Claim 21, but also includes all values below 25, for which there is no support. **As to Claim 23**, this claim is rejected as being dependent on Claim 22. **As to Claims 24 and 25**, there is no disclosure of 0.1-8 W/square meter or 0.1-0.3 J/square meter. **As to Claim 26**, there is no disclosure of 85%.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim rejections set forth previously under this section are withdrawn in view of the amended claims.

6. **Claims 1-18 and 21-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over De Sorgia (USPN 3943046) in view of Mibu (USPN 4276479) and Spinelli (USPN 4404248).

As to Claim 1, De Sorgia teaches a method for curing a UV curable clearcoat composition, the method comprising:

- providing an article (7:51-53);
- applying a UV curable clearcoat composition to the article (1:39-63);
- exposing the clearcoat composition to a first light source having a first average light intensity for a first period of time to cure a first part of the composition (4:27-34); and
- exposing the clearcoat composition to a second light source having a second diffuse (5:26 and 8:38) average light intensity for a second period of time (4:31-46) which is sufficient to cure a second portion of the UV curable clearcoat composition, the first and second portions forming a substantially cured clearcoat (3:52-54), the first portion being above the second portion (8:28-32).

De Sorgia appears to be silent to:

- a) the second average light intensity is less than the first average light intensity
- b) a three-dimensional surface
- c) being substantially free of shadowing effects

However, these limitations would have been prima facie obvious for the following reasons:

- a) De Sorgia teaches that the average light intensities required are dependent on the kind of polymerizable vehicle in the film, the thickness, the gaseous atmospheres around the film, the type of sensitizers or other activators, and the wavelength or wavelengths emanated from the ultraviolet source (3:63-4:2 and 5:9-30). Therefore, De Sorgia clearly recognizes the result-effective nature of light intensity in the polymerization process. Light intensity, therefore,

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represents a result-effective variable which one of ordinary skill would have found it prima facie obvious to optimize to arrive at the claimed conditions according to the particular thickness, atmosphere, sensitizer, and wavelength used. See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Additionally, Mibu teaches a method in which the second average light intensity is less than the first average light intensity (See 2:16-30).

b) Spinelli teaches that clearcoat compositions are desirably applied as an exterior finish for automobiles (Abstract), which have a three-dimensional surface.

c) Mibu clearly shows illumination of a three-dimensional object, which would be substantially free of shadowing effects (Fig. 3b).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Spinelli and Mibu into that of De Sorga because (a and c) doing so would produce a smooth and very glossy surface having neither crinkles nor wrinkles, which is tougher and harder than those obtained by conventional methods (Mibu, 6:58-62) and (b) De Sorga clearly suggests coatings of hydroxyethyl acrylates and Spinelli suggests that these coatings (4:16) have desirable properties for automobile exterior finishes (1:54-57) and would produce desirable gloss and durability. **As to Claim 2**, De Sorga teaches the percent and configuration (7:41-46). **As to Claim 3**, Spinelli teaches an automobile (1:54-57). **As to Claim 4**, see 5:16-22. **As to Claim 5**, the Examiner asserts that the particular apparatus limitation claimed does not materially affect the claimed method because the film and method would not be materially changed regardless of what apparatus is used to deliver the same intensity. However, De Sorga additionally teaches lamps that are fluorescent lamps (8:33-45), and because of their

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large size and distance from the substrate, are interpreted to be diffuse (8:35-45). A diffuse second source would have been additionally obvious over De Sorga's teaching to spread light beams over the work (5:26-27) and in view of Mibu's teaching to use a diffuse array of curing lamps (Fig. 4b). **As to Claims 6 and 7**, De Sorga clearly teaches the claimed wavelengths as being within the advantageous and preferable range (1:34-38), and the intensity is clearly found to be a result effective variable which the ordinary artisan would have found it obvious to optimize, and arrive at the claimed conditions, according to the particular thickness, atmosphere, sensitizer, and wavelength used (3:63-4:2 and 5:9-30). See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). **As to Claim 8**, De Sorga clearly recognizes that intensity represents a result effective variable which the ordinary artisan would have found it obvious to optimize, and arrive at the claimed conditions, according to the particular thickness, atmosphere, sensitizer, and wavelength used (3:63-4:2 and 5:9-30). See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). **As to Claim 11**, De Sorga clearly teaches the claimed wavelengths for the first average intensity as being within the advantageous and preferable range (1:34-38). De Sorga additionally teaches that the intensity is a result effective variable which the ordinary artisan would have found it obvious to optimize according to the particular thickness, atmosphere, sensitizer, and wavelength used (3:63-4:2 and 5:9-30) in order to produce the desirable result of polymerizing the resin-forming material into a protective skin (7:25-27). See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). One of ordinary skill would have been motivated to optimize the intensity based on the particular thickness, atmosphere, sensitizer, and wavelength in order to produce a protective skin on the surface. Additionally, De Sorga appears to teach the particular average

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intensity sought (5:11-16). **As to Claim 12**, De Sorga teaches the claimed wavelengths (1:37-38) and additionally recognizes that intensity represents a result effective variable which the ordinary artisan would have found it obvious to optimize, and arrive at the claimed conditions, according to the particular thickness, atmosphere, sensitizer, and wavelength used (3:63-4:2 and 5:9-30) in order to produce the desirable result of substantially completely polymerizing the coating throughout having excellent adhesion and gloss (8:42-45). See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). One of ordinary skill would have been motivated to optimize the intensity based on the particular thickness, atmosphere, sensitizer, and wavelength in order to produce a fully cured paint film. **As to Claims 13 and 14**, De Sorga clearly teaches a discontinuous and flashing light source having a number of spaced apart flashes of light (3:20-26, 3:55-62, 5:24-27 and 2:42).

As to Claim 15, De Sorga teaches a method for curing a UV curable clearcoat composition, the method comprising:

- providing an article (7:51-53);
- applying a UV curable clearcoat composition to the article (1:39-63);
- exposing the clearcoat composition to a first light source having a first average light intensity at between 260 and 400 nm to cure a first part of the composition (1:37-38, 8:13, 4:27-34); and

- exposing the clearcoat composition to a second light source having a second light source having a second average light intensity at between 300 and 400 nm (1:37-38) to cure a second portion of the UV curable clearcoat composition, the first and second portions forming a substantially cured clearcoat (8:40-45).

De Sorgia appears to be silent to:

- a) the first average light intensity of 0.1-100 W/square meter and the second average light intensity of 0.01-1.0 W/square meter
- b) a three-dimensional surface
- c) being substantially free of shadowing effects

However, these limitations would have been *prima facie* obvious for the following reasons:

a) De Sorgia teaches that the first average intensity is a result effective variable which the ordinary artisan would have found obvious to optimize according to the particular thickness, atmosphere, sensitizer, and wavelength used (3:63-4:2 and 5:9-30) in order to produce the desirable result of polymerizing the resin-forming material into a protective skin (7:25-27). See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). One of ordinary skill would have been motivated to optimize the intensity based on the particular thickness, atmosphere, sensitizer, and wavelength in order to produce a protective skin on the surface.

De Sorgia teaches that the average second intensity represents a result effective variable which the ordinary artisan would have found it obvious to optimize, and arrive at the claimed conditions, according to the particular thickness, atmosphere, sensitizer, and wavelength used (3:63-4:2 and 5:9-30) in order to produce the desirable result of substantially completely polymerizing the coating throughout having excellent adhesion and gloss (8:42-45). See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). One of ordinary skill

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would have been motivated to optimize the intensity based on the particular thickness, atmosphere, sensitizer, and wavelength in order to produce a fully cured paint film (8:40-45).

b) Spinelli teaches that clearcoat compositions are desirably applied as an exterior finish for automobiles (Abstract), which have a three-dimensional surface.

c) Mibu clearly shows illumination of a three-dimensional object, which would be substantially free of shadowing effects (Fig. 3b).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Spinelli and Mibu into that of De Sorgia because (c) doing so would produce a smooth and very glossy surface having neither crinkles nor wrinkles, which is tougher and harder than those obtained by conventional methods (Mibu, 6:58-62) and (b) De Sorgia clearly suggests coatings of hydroxyethyl acrylates and Spinelli suggests that these coatings (4:16) have desirable properties for automobile exterior finishes (1:54-57) and would produce desirable gloss and durability. **As to Claims 16 and 17**, De Sorgia teaches the percent and configuration (7:41-46), and the first source being a xenon flash lamp (5:16-22). **As to Claim 18**, De Sorgia teaches lamps that are fluorescent lamps (8:33-45), and because of their large size and distance from the substrate, are interpreted to be diffuse (8:35-45). A diffuse second source would have been additionally obvious over De Sorgia's teaching to spread light beams over the work (5:26-27) and in view of Mibu's teaching to use a diffuse array of curing lamps (Fig. 4b). **As to Claims 21-23**, De Sorgia teaches that the dose should be sufficient to produce the desirable result of polymerizing the resin-forming material into a protective skin (7:25-27). See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). One of ordinary skill would have been motivated to optimize the cumulative intensity based on

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the particular thickness, atmosphere, sensitizer, and wavelength in order to produce a protective skin on the surface. **As to Claim 24**, De Sorga teaches the intensity and wavelength (5:11-15 and 1:37-38). **As to Claim 25**, De Sorga teaches that the first cumulative intensity is a result effective variable which the ordinary artisan would have found obvious to optimize according to the particular thickness, atmosphere, sensitizer, and wavelength used (3:63-4:2 and 5:9-30) in order to produce the desirable result of polymerizing the resin-forming material into a protective skin (7:25-27). See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). One of ordinary skill would have been motivated to optimize the intensity based on the particular thickness, atmosphere, sensitizer, and wavelength in order to produce a protective skin on the surface, and De Sorga clearly teaches the wavelengths claimed (1:37-38). **As to Claim 26**, De Sorga teaches both the first portion and the second portion being substantially fully cured (7:24-45 and 8:40-45), which would be at least 85% for each portion.

7. **Claims 9-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over De Sorga (USPN 3943046) in view of Mibu (USPN 4276479) and Spinelli (USPN 4404248), and further in view of Takamizawa (USPN 4359369). De Sorga, Spinelli, and Mibu teach the subject matter of Claim 1 above under 35 USC 103(a). **As to Claims 9 and 10**, the Examiner asserts that one of ordinary skill in the art at the time of the invention would have recognized the irradiation time to be a result effective variable in view of De Sorga's teaching of particular conveyor belt speed (8:41) and in order to cause minor polymerization in the skin to a particular depth (7:42-45) and substantially complete polymerization in the second stage (7:37-40). The particular exposure times therefore appear to represent result-effective variables that one of ordinary skill in the art

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would have been motivated to optimize in order to provide a particular degree of skin curing and complete polymerization in the second step. However, in the alternative Takamizawa teaches that the irradiation time required for curing “naturally depends on various parameters” (7:23). Therefore, Takamizawa additionally teaches that the irradiation time is a result-effective variable. One of ordinary skill in the art would have found it prima facie obvious to optimize this variable to arrive at the claimed conditions. See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Takamizawa into that of De Sorga and Mibu in order to provide complete curing (Takamizawa, 7:22), a result which De Sorga clearly suggests (7:37-45).

Response to Arguments

8. Applicant's arguments filed 30 May 2006 have been fully considered but they are not persuasive. The arguments appear to be on the following grounds:

- a) De Sorga and Mibu do not teach or suggest the new limitations of Claim 1.
- b) De Sorga does not provide a fluorescent diffuse lighting source
- c) The claimed range of intensities in Claim 11, namely 0.1 to 100 Watts per square meter, are not taught by the proposed combination.
- d) Claims 21-26 are new, and the subject matter of these claims is not taught by De Sorga and Mibu. The beneficial result of the critical number of flashes is shown by Example 5.
- e) In Claim 12, the claimed intensity is not taught by the proposed combination.

f) De Sorga and Mibu do not teach or suggest the new limitations of Claim 15, including particularly the first average light intensity and the second average light intensity.

g) De Sorga does not provide the fluorescent diffuse lighting source of Claim 18.

9. These arguments are not persuasive for the following reasons:

a, d, f) These new limitations are believed to be addressed by the new claim rejections above.

Applicant's remarks have directed the Examiner's attention to Example 5 for the criticality of the claimed number of flashes. The Examiner has set forth the position that the dosage of flashed light in the first stage of polymerization represents a result-effective variable in order to produce the result of polymerizing the resin into a protective skin (7:24-48). In particular, it should be noted that De Sorga clearly suggests that a sufficient amount of radiation should be provided with a xenon flash lamp to polymerize to about 10% to 40% of the film depth (7:40-46).

The instant specification discloses that this "critical" variable produces a surface cure of 3% to 25% of the thickness of the film (page 7, lines 16-26) using a xenon flash lamp (Claim 4). However, it is unclear how criticality is demonstrated because both De Sorga's method and Applicant's disclosed method both use flashed xenon lamps to produce substantially the same result, namely a surface cure of about 10%-25%. The Examiner asserts that the similarities of the claimed method and the method of De Sorga, producing substantially the same result rebut the assertion of criticality of this variable as set forth in Applicant's remarks.

b, g) The Examiner has reconsidered his position as to this limitation, and asserts that the bulb disclosed by De Sorga is a fluorescent bulb. Additionally, to be entitled to weight in method

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claims, recited structural limitations must affect the method in a manipulative sense and not amount to mere claiming of use of a particular structure. See *Ex parte Pfeiffer* 135 USPQ 31 (BPAI 1961). In this case, De Sorga delivers substantially the same wavelength as claimed (namely 300 nm to 400 nm, 1:37), and the instant claims appear to be drawn only to delivering the same wavelength with an apparatus that is asserted to be difference. However, no criticality has been attributed or argued to be resulting from the particular bulbs claimed, and the Examiner's position will be that this is a claim to use of a particular bulb structure which is not distinguished from De Sorga's method.

c) De Sorga clearly teaches that intensity is a result-effective variable in order to produce a protective film on the surface. The ordinary artisan, guided by this suggestion, would have found a suitable intensity (4:5-6) by optimization to produce a protective film. Additionally, see De Sorga's teaching of intensity values within the claimed range (5:11-16).

e) De Sorga teaches the claimed wavelengths (1:37-38) and additionally recognizes that intensity represents a result effective variable which the ordinary artisan would have found it obvious to optimize, and arrive at the claimed conditions, according to the particular thickness, atmosphere, sensitizer, and wavelength used (3:63-4:2 and 5:9-30) in order to produce the desirable result of substantially completely polymerizing the coating throughout having excellent adhesion and gloss (8:42-45). See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). One of ordinary skill would have been motivated to optimize the intensity based on the particular thickness, atmosphere, sensitizer, and wavelength in order to produce a fully cured paint film.

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Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

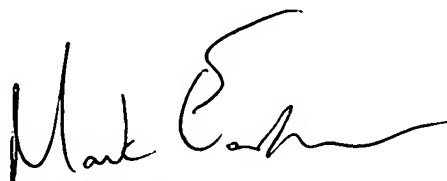
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Daniels whose telephone number is (571) 272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJD 8/15/06

MJD



MARK EASHOO, PH.D
PRIMARY EXAMINER

18/Aug/06